

What is claimed is:

1. A load coil for insertion along a local loop to counteract a parallel capacitance of the local loop to improve transmission of POTS-band signals and permit passage of DSL signals, the load coil comprising:

a coupled inductor having first and second windings wrapped about an inductor core, each winding having an input and an output, the coupled inductor configured for disposal along the local loop;

a first capacitive element disposed between the input of the first winding and the input of the second winding; and

a second capacitive element disposed between the output of the first winding and the output of the second winding.

2. The load coil of claim 1, wherein the first and second capacitive elements each have a capacitance in the range of 10 nF to 82 nF.

3. The load coil of claim 1, wherein the first and second capacitive elements each have a capacitance in the range of 5 nF to 50 nF.

4. The load coil of claim 1, wherein the coupled inductor has an inductance of about 66 mH.

1 5. The load coil of claim 1, wherein the first and second windings have an inter-
2 winding capacitance and the first and second capacitances increase the effective inter-
3 winding capacitance of the first and second windings by at least a factor of 5.

Sub
a3
1 6. A load coil for insertion along a local loop to condition the loop for the
2 transmission of POTS signals and permit passage of DSL signals with low attenuation,
3 the load coil comprising:

4 a coupled inductor having first and second windings wrapped about an inductor
5 core, each winding having an input and an output, the coupled inductor configured for
6 disposal along the local loop;

7 a first capacitive element disposed in parallel with the first winding; and

8 a second capacitive element disposed in parallel with the second winding.

Sub
C1
1 7. The load coil of claim 6, wherein the first and second capacitive elements each
2 have a capacitance in the range of 5 nF to 50 nF.

1 8. The load coil of claim 6, wherein the first and second capacitive elements each
2 have a capacitance in the range of 10 to 82 nF.

1 9. The load coil of claim 6, wherein the coupled inductor has an inductance of about
2 66 mH.
3

1 10. The load coil of claim 6, wherein the first and second windings each have an
2 intra-winding capacitance and the first and second capacitances increase the effective
3 intra-winding capacitance of the first and second windings by at least a factor of 120.

1 11. A system for transmitting DSL and POTS signals over a local loop, the system
2 comprising:

3 a first load coil for disposal along the local loop to condition the POTS signals,
4 the first load coil including a coupled inductor and multiple capacitive elements for
5 increasing an effective capacitance of the coupled inductor to improve transmission of
6 DSL signals across the first load coil;

7 a first DSL signal repeater for disposal along the local loop in series with the first
8 load coil to amplify the DSL signals, the first DSL signal repeater including a second
9 load coil for conditioning POTS signals passing therethrough.

12. The system for transmitting DSL and POTS signals according to claim 11,
wherein the coupled inductor has first and second windings wrapped about an inductor
core, each winding having an input and an output, the multiple capacitive elements
further comprising:
a first capacitive element being disposed between the input of the first winding
and the input of the second winding; and
a second capacitive element disposed between the output of the first winding and
the output of the second winding.

1 13. The system for transmitting DSL and POTS signals according to claim 11,
2 wherein the coupled inductor has first and second windings wrapped about an inductor
3 core, the multiple capacitive elements further comprising:
4 a first capacitive element disposed in parallel with the first winding; and
5 a second capacitive element disposed in parallel with the second winding.

Sub C1
1 14. The system for transmitting DSL and POTS signals according to claim 11,
2 wherein each capacitive element has a capacitance between 10 nF – 82 nF.

1 15. The system for transmitting DSL and POTS signals according to claim 11,
2 wherein each capacitive element has a capacitance between 5 nF – 50 nF.

Sub A
1 16. A load coil for disposal along a local loop to condition POTS signals and to
2 permit passage of DSL signals as the POTS and DSL signals traverse the local loop, the
3 load coil comprising:
4 inductive means for conditioning POTS signals as they traverse the local loop;
5 capacitive means coupled to the inductive means for permitting the DSL signals
6 to pass across the load coil.

Sub
B5

- 1 17. A system for transmitting DSL and POTS signals over a local loop, the system
2 comprising:
3 load coil means positioned along the local loop, the load coil means comprising
4 inductive means for conditioning POTS signals as they traverse the local loop and
5 capacitive means coupled to the inductive means for facilitating passage of DSL signals
6 across the load coil; and
7 DSL signal amplification means positioned along the local loop for amplifying
8 DSL signals as they traverse the local loop.

Add
Al

Add
Bo